AMENDMENTS TO THE CLAIMS

Claims 1-36 (Cancelled)

37. (New) A method, comprising:

driving a plurality of gain elements according to groups of multiple gain elements, such that a respective drive signal is provided to each group to cause each gain element of the respective group to operate at substantially the same power within a region of optimal electrical efficiency;

diffracting beams from said plurality of gain elements toward a partially reflective element using a diffractive element;

generating feedback for said plurality of gain elements using said partially reflective component;

directing respective spectral components of said feedback using said diffractive element toward respective gain elements of said plurality of gain elements; and

providing optical power transmitted by said partially reflective component to a Raman amplifier to generate substantially flat Raman gain across at least one telecommunications band.

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38. (New) The method of claim 37 wherein said plurality of gain elements are integrated on a single integrated semiconductor element.

39. (New) The method of claim 38 wherein spacings between gain elements generating optical power of shorter wavelengths are smaller than spacings between gain elements generating optical power of longer wavelengths.

40. (New) The method of claim 37 wherein said telecommunications band includes wavelengths from 1530 nm to 1565 nm.

41. (New) The method of claim 37 wherein said telecommunications band includes wavelengths from 1480 nm to 1525 nm.

42. (New) The method of claim 37 wherein said telecommunications band includes wavelengths from 1570 nm to 1610 nm.

43. (New) The method of claim 37 wherein a first group of multiple gain elements is integrated on a first single semiconductor element and a second group of multiple gain elements is integrated on a second single semiconductor element.

44. (New) The method of claim 43 wherein said diffractive element comprises a first diffraction grating and a second diffraction grating.

45. (New) The method of claim 44 further comprising:

combining beams from said first and second diffraction gratings using a dichoric beam combiner before generating said feedback.

46. (New) The method of claim 37 further comprising:

multiplexing an output from a narrowband laser with optical power transmitted by said partially reflective component, wherein said narrowband laser generates an output beam of a lower wavelength than wavelengths generated by said plurality of gain elements.

A' Cont'd

47. (New) A system, comprising:

a plurality of groups of multiple gain elements, wherein a respective drive signal is provided to each group to cause each gain element of the respective group to operate at substantially the same power within a region of optimal electrical efficiency;

a diffractive element diffracting beams from said plurality of groups of multiple gain elements toward a partially reflective component;

said partially reflected component generating feedback directed toward said diffractive element;

said diffractive element directing spectral components of said feedback toward respective gain elements of said plurality of groups of multiple gain elements; and

a Raman amplifier receiving optical power transmitted by said partially reflective component that generates substantially flat Raman gain across at least one telecommunication band.

48. (New) The system of claim 47 wherein said plurality of groups of multiple gain elements are integrated on a single integrated semiconductor element.

49. (New) The system of claim 47 wherein spacings between gain elements generating optical power of shorter wavelengths are smaller than spacings between gain elements generating optical power of longer wavelengths.

50. (New) The system of claim 47 wherein said telecommunications band includes wavelengths from 1530 nm to 1565 nm.

51. (New) The system of claim 47 wherein said telecommunications band includes wavelengths from 1480 nm to 1525 nm.

52. (New) The system of claim 47 wherein said telecommunications band includes wavelengths from 1570 nm to 1610 nm.

A' cont'd

53. (New) The system of claim 47 wherein a first group of said plurality of groups is integrated on a first single semiconductor element and a second group of said plurality of groups is integrated on a second single semiconductor element.

54. (New) The system of claim 53 wherein said diffractive element comprises a first diffraction grating and a second diffraction grating.

55. (New) The system of claim 54 further comprising:

a dichoric beam combiner for combining beams from said first and second diffraction gratings before reflection by said partially reflective component occurs.

56. (New) The system of claim 47 further comprising:

a narrowband laser for generating an output beam of a lower wavelength than wavelengths generated by said plurality of groups; and

a multiplexer for multiplexing said narrowband laser with optical power transmitted by said partially reflective component.